

REMARKS/ARGUMENTS

Claims 41-58 and 63 were previously pending in this application. Claims 41-58 and 63 have been rejected in a Final Office Action dated November 12, 2009 (“the Office Action”). By the above amendments Claims 41, 46, 51, 56, 57 and 63 have been amended. Accordingly, Claims 41-58 and 63 are currently pending.

Amendments to the Claims

In an interview between the Examiner and Thomas B. Haverstock dated January 27, 2010, and documented in an Interview Summary (“the Interview”) dated January 29, 2010, it is stated that the Applicant’s representative agreed to incorporate “**each** of a plurality of switch configurations” instead of “**any** of a plurality of switch configurations.” By the above amendments, Claim 41, 46, 51, 56, 57 and 63 have been amended to recite “settable to each [[any]] of a plurality of switch configurations...”. By the above amendments, Claims 41, 51, 56, and 57 have been amended to correct minor typographical errors. No new matter has been added.

Objections to the Claims

Within the office action, Claims 41-55 have been objected on the basis of the following informalities in the claims.

Claims 41 and 51

Within the Office Action it is stated that Claim 41 recites the limitation “the handset including a headset receive path” in line 6 of the claim, while Claims 56 recites the “headset including a headset receive path”, and that therefore the Examiner assumes that the limitation in Claim 41 is directed to “the headset including a headset receive path.” Claim 51 has been objected to for the same reasons. By the above amendments, Claim 41 has been amended to recite “the headset including a headset receive path,” and Claim 51 been amended to recite “the plurality of signal lines from the headset.” The Applicants respectfully submit that the language of the claims is internally consistent and claim terms have a proper antecedent basis. Accordingly, the Applications request that the object to the claims be withdrawn. Claims 42-50 are all dependent upon the independent Claim 49. Claims 52-55 are all dependent upon the independent Claim 51. As discussed above, Claims 41 and 51 are now in proper form. Accordingly, the applicants respectfully request that the objections to Claims 42-50 and 52-55 also be withdrawn.

Claims 57 and 58

Within the office Action, Claim 57 have been objected to because Claim 57 recites the limitation “measuring a signal on the headset receive path” in line 6 of the claim, but that there is insufficient antecedent basis for the limitation. Since Claim 58 is dependent upon Claim 57, Claim 58 has also been rejected. By the above amendments, Claim 57 has been amended to recite “measuring a signal on a headset receive path.” Accordingly, the Applicants respectfully request that the objection to Claims 57 and 58 be withdrawn.

Rejections under 35 U.S.C. § 112

Within the Office Action, Claims 41-58 and 63 have been rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. Specifically, it is stated that the claims contain subject matter, i.e. “a switch matrix, settable to **any** of a plurality of switch configurations”, which was not described in the specification in such a way as to reasonably convent to one skilled in the relevant art that the inventor(s), at the time application was filed, had possession of the invention.

As discussed above, Claims 41, 51, 56, 57, and 63 have been amended to recite “**each** of a plurality of switch configurations.” Accordingly, the Applicants respectfully submit that Claims 41, 51, 56, 57 and 63 are fully compliant with the written description requirement of 35 U.S.C. § 112, first paragraph. Claims 42-50 are all dependent upon the independent Claim 41. Claims 52-55 are all dependent upon the independent Claim 51. Claim 58 is dependent upon the independent Claim 57. As discussed above, Claims 41, 51 and 57 meet the written description requirement. Accordingly, Claims 42-50, 52-55, and 58 are all also allowable as being dependent upon an allowable base claim.

Within the Office Action, Claims 41-58 and 63 have been rejected under 35 U.S.C. § 112, first paragraph, as failing to meet the written description requirement. Specifically, it is stated that Claim 41 recites “automatically determines which of the plurality of signal lines from the handset port comprise the handset port receive path” and “determines a preferred switch configuration from among a plurality of switch configurations based upon which of the plurality of signal lines from the handset port comprise the handset port receive path, but that the Examiner does not find support for the claim language. The Applicants respectfully submit that the claim language is fully supported by the specification and that the disclosure meets the written description requirement of 35 U.S.C. § 112, first paragraph.

The present invention provides a “Smart Interface Technology” (SIT) system interface 50 which provides an interface between accessories 60 and 62 and telephone base units 54 and 58.

[Specification, page 6, lines 25-28; FIG. 6]. The interface between the SIT 50 and the telephone base units 54 and 58 is via a 4-wire telephone handset port 202. [Specification, page 7, lines 6-10; FIGS. 7 and 8]. The operation of the handset port 202 is controlled by an integrated circuit 200. [Specification, page 7, lines 9-10; FIG. 7]. Within the integrated circuit 200, the handset port 202 is interfaced to a shunt select array 3, and to a crosspoint switch array 2, both of which are controlled by a 32-bit addressable latch 1 which controls selection of a plurality of signal lines from the handset port 202. [Specification, page 13, lines 11-18; FIG. 8]. A digital microcontroller (MCU) 100 is interfaced to the 32-bit addressable latch 1 in the analog circuit 200 at latch pins BA0 through BA4, DATA OUT and DATA IN pins. [Specification, page 10, lines 11-27, FIG. 8 elements 1-3]. Under control of the digital MCU 100, the 32-bit addressable latch 1 manipulates the crosspoint array and the shunt select array 3 by sequentially coupling pairs of line input ports until a CO dialtone is sensed by the digital MCU 100 in the receive channel thereby determining the handset port receive path. [Specification, page 13, lines 23-27]. Thus, it is clear to one skilled in the art of embedded system design, and clearly stated in the written description, that “determining which of the plurality of signals from the handset port 202 comprise the handset port receive path” comprises sequentially coupling pairs of line input ports until a CO dialtone is sensed and that “automatically” refers to performing the “determining” under the control of the MCU 100. *Once the handset port receive lines are determined and selected, certain transmit lines are highly probable and are prioritized* in the system algorithms. [Specification, page 15, lines 24-27]. The MCU 100 generates a 1KHz transmit calibration signal which is controlled by the 32-bit addressable latch 1, the addressable latch being controlled by the MCU 100, as described above. [Specification, page 16, lines 10-16; FIGS. 7 and 8]. The MCU then begins manipulating the crosspoint array 2 by sequentially coupling pairs of the transmit output ports starting with the most probable pairs defined in the system algorithms. [Specification, page 17, lines 5-8]. When the MCU 100 senses the 1KHz signal it will have successfully located the appropriate transmit lines. [Specification, page 17, lines 11-12]. Since certain transmit lines are highly probable and are prioritized after the handset port receive lines are determined, the MCU 100 determines a preferred switch configuration from among a plurality of switch configurations based upon which of the plurality of signal lines from the handset port comprise the handset port receive path.

Claim 41

The independent Claim 41 is directed to a self-configuring telephone interface unit, comprising a switch matrix, settable to each of a plurality of switch configurations, each switch

configuration coupling a plurality of signal lines from a handset port of a telephone to a plurality of signal lines from a headset, the plurality of signal lines from the handset port including a handset port receive path, the plurality of signal lines from the headset including a headset receive path, and a control logic, coupled to the switch matrix, that automatically determines which of the plurality of signal lines from the handset port comprise the appropriate signal lines, determines a preferred switch configuration from among a plurality of switch configurations based upon which of the plurality of signal lines from the handset port comprise the handset port receive path, and sets the switch matrix to the preferred switch configuration, the preferred switch configuration coupling the handset port receive path, to the headset receive path. As discussed above, the disclosure fully supports the claim language “a control logic, coupled to the switch matrix, that automatically determines which of the plurality of signal lines from the handset port comprise the appropriate signal lines” and “determines a preferred switch configuration from among a plurality of switch configurations based upon which of the plurality of signal lines from the handset port comprise the handset port receive path” in compliance with the written description requirement of 35 U.S.C. § 112, first paragraph. Accordingly, the independent Claim 41 is allowable.

Claims 42-50 are all dependent upon the independent Claim 41. As described above, the independent Claim 41 is allowable. Accordingly, Claims 42-50 are all also allowable as being dependent upon an allowable base claim.

Claim 51

The independent Claim 51 is directed to a self-configuring telephone interface unit, comprising a switch matrix, settable to each of a plurality of switch configurations, each switch configuration coupling a plurality of signal lines from a handset port of a telephone to a plurality of signal lines from a headset, the plurality of signal lines from the handset port including a handset port receive path, the plurality of signal lines from the headset including a headset receive path, a variable gain circuit for modifying an amplitude of a signal transmitted on a headset transmit path switchably coupled to a handset port transmit path, a handset transmit path switchably coupled to the handset port transmit path, and a control logic, coupled to the switch matrix, that automatically sets the switch matrix to a preferred switch configuration from among the plurality of switch configurations, the preferred switch configuration coupling the handset port receive path to the headset receive path through an appropriate signal path, and the control logic couples the handset port transmit path alternately to the headset transmit path and to the handset transmit path, receives a first gain signal and a second gain signal from the handset port transmit path, and adjusts the gain of the variable gain circuit in response to the first and second

gain signals, the first gain signal generated by an audio test signal transmitted by the handset transmit path, the second gain signal generated by the audio test signal transmitted by the headset transmit path. As discussed above, the disclosure fully supports the claim language “a control logic, coupled to the switch matrix, that automatically sets the switch matrix to a preferred switch configuration from among the plurality of switch configurations, the preferred switch configuration coupling the handset port receive path to the headset receive path through an appropriate signal path” in compliance with the written description requirement of 35 U.S.C. § 112, first paragraph. Accordingly, the independent Claim 51 is allowable.

Claims 52-55 are all dependent upon the independent Claim 51. As described above, the independent Claim 51 is allowable. Accordingly, Claims 52-55 are all also allowable as being dependent upon an allowable base claim.

Claim 56

The independent Claim 56 is directed to a self-configuring headset and telephone interface unit, comprising a headset, a switch matrix, settable to each of a plurality of switch configurations, each switch configuration coupling a plurality of signal lines from a handset port of a telephone to a plurality of signal lines from the headset, the plurality of signal lines from the handset port including a handset port receive path, the plurality of signal lines from the headset including a headset receive path, and, a control logic, coupled to the switch matrix, that automatically determines which of the plurality of signal lines from the handset port comprise the handset port receive path, determines a preferred switch configuration from among the plurality of switch configurations based on which of the plurality of signal lines from the handset port comprise the handset port receive path, and sets the switch matrix to the preferred switch configuration, the preferred switch configuration coupling the handset port receive path to the headset receive path. As discussed above, the disclosure fully supports the claim language “a control logic, coupled to the switch matrix, that automatically determines which of the plurality of signal lines from the handset port comprise the handset port receive path, determines a preferred switch configuration from among the plurality of switch configurations based on which of the plurality of signal lines from the handset port comprise the handset port receive path” in compliance with the written description requirement of 35 U.S.C. § 112, first paragraph. Accordingly, the independent Claim 56 is allowable.

Claim 57

The independent claim 57 is directed to a method for automatically configuring a telephone interface unit comprising a switch matrix settable to each of a plurality of switch

configurations. The method comprises receiving a test signal on a handset port receive path, setting the switch matrix to each of at least two switch configurations, for each of the at least two switch configurations, measuring a signal on a headset receive path resulting from the test signal, and automatically setting the switch matrix to a preferred switch configuration from among the at least two switch configurations, the preferred switch configuration corresponding to the appropriate signal on the headset receive path with either a minimum or a maximum value. As discussed above, the disclosure fully supports the claim language “automatically setting the switch matrix to a preferred switch configuration from among the at least two switch configurations” in compliance with the written description requirement of 35 U.S.C. § 112, first paragraph. Accordingly, the independent Claim 57 is allowable.

Claim 58 is dependent upon the independent Claim 57. As discussed above, the independent Claim 57 is allowable. Accordingly, Claim 58 is also allowable as being dependent upon an allowable base claim.

Claim 63

The independent Claim 63 is directed to method of automatically configuring a telephone interface unit comprising a switch matrix settable to each of a plurality of switch configurations for interfacing a handset port of a telephone to a headset, the handset port coupled to the interface unit by a handset port receive path and a handset port transmit path, the headset coupled to the interface unit by a headset receive path and a headset transmit path. The method comprises receiving a test signal on a handset port receive path, setting the switch matrix to each of at least two switch configurations, for each of the at least two switch configurations, measuring a signal on the headset receive path resulting from the test signal, automatically setting the switch matrix to a preferred switch configuration from the among the at least two switch configurations, the preferred switch configuration corresponding to the appropriate signal on the headset receive path with either a minimum or a maximum value, and automatically adjusting a gain of the headset transmit path to match a gain of the handset port transmit path. As discussed above, the disclosure fully supports the claim language “automatically setting the switch matrix to a preferred switch configuration from the among the at least two switch configurations” in compliance with the written description requirement of 35 U.S.C. § 112, first paragraph. Accordingly, the independent Claim 63 is allowable.

Conclusion

For the reasons given above, the Applicant respectfully submits that the Claims 41-58 and 63 are in condition for allowance. Should the Examiner have any questions or comments, the Examiner is encouraged to call the undersigned at (408) 530-9700 to discuss the same so that any outstanding issues can be expeditiously resolved.

Respectfully submitted,
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